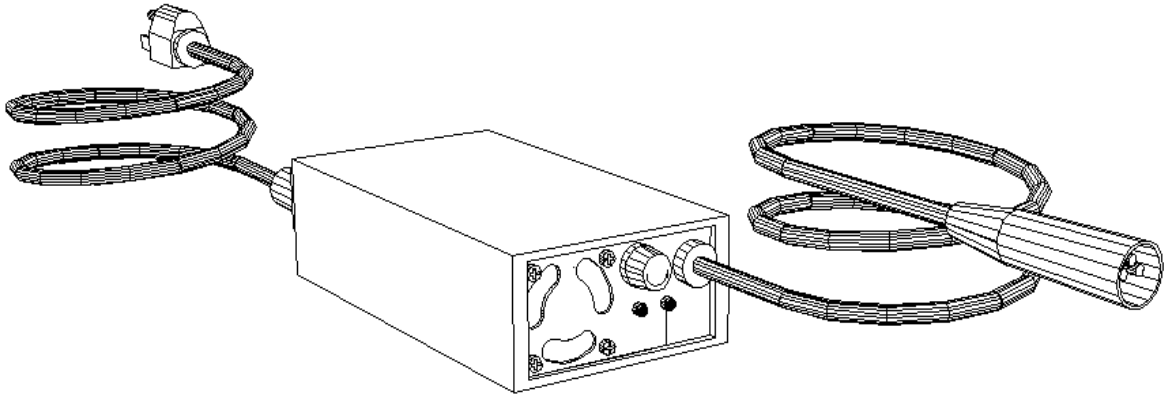
HELI TOW CART BY VANAIR



Battery Charger
User Manual

September 2012
User Manual Battery Charger 4 - 7- 18 amps (2013 01 29)

Questions? Contact us!

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	Please give this manual to the owner of the Helitowcart.

	Please read and familiarize yourself with this manual in it's entirety before using your battery charger for the first time. Read again this manual until you become familiar with it and pay close attention to the warnings.

	Should you have any questions about subjects not covered in this manual, consult a technician from an authorized service dealer. Consult first page for manufacturers coordinates.

	Do not install unauthorized accessories. Always consult a technician at an authorized service dealer for any modification to your battery charger.

Dealer: _____

Address: _____

_____

Telephone: _____

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1.1 Safety requirements

Safely using the BATTERY CHARGER

IMPORTANT	**Set voltage selector to appropriate setting PRIOR TO initial use. Select 115 or 230 Volts according to local electrical services. Failure to do so could lead to major battery charger damage.**

Safe Use (IMPORTANT):

Set voltage selector to appropriate setting for initial use 115/230 Volts. Failure to do so could lead to major battery charger damage.

Always make sure that connector linking to the Helitowcart is fully inserted into machine socket to recharge batteries.

If your battery charger has an ON/OFF switch: Always set the ON/OFF switch in the OFF position prior to disconnecting cable from machine.

Always unplug machine from battery charger prior to attempting any movement. Failure to do so can result in battery charger and/or machine getting damaged.

To reduce risk of injury, charge only lead-acid type rechargeable batteries. Other types of batteries may burst causing personal injury or damage.

To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.

Extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in risk of fire and electric shock. If extension cord must be used. make sure:That the pins on plug of extension cord are the same number, size, shape, as those on the charger.That extension cord is properly wired and in good condition.Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subject to damage or stress.

Do not operate charger with damaged cord or plug – replace immediately.

Do not operate charger if it has received a sharp blow or otherwise damaged in anyway.

Work Environment:

Do not use your battery charger in a hermetic or non ventilated environment.

Do not immerse your battery charger. It could cause dangerous defects.

Do not store your battery charger under rain, wet or very cold place. Do not expose charger to water, rain or snow.

Do not cover the battery charger by clothing or similar things during charging process. Ensure free ventilation

Keep the battery charger away from dusty conditions.

Modifications to battery charger:

Never attempt modification to battery charger electric circuit or connector.

Never connect to electric components other than those manufactured by Helitowcart (Vanair inc.).

Always immediately replace any damaged electric cable.

Always perform maintenance to battery charger as recommended by Helitowcart.

Cleaning and Maintenance

Clean battery charger using a soft rag and diluted soft soap.

Do not use alcohol or thinner based detergents.

Regularly carry out maintenance as recommended by Helitowcart.

About electromagnetic energy

All electronic instruments which transmit remote information are generally apparatuses which emit some radio waves in the environment. These radio waves are called “electromagnetic energy ". The proper operation of an electronic instrument can be deteriorated by this electromagnetic energy field. It is what we call "an electromagnetic interference ". The stronger the intensity of energy, greater the risk of faulty operation of the apparatus. This energy is measured in volt per meter (V/m).

All motorized Helitowcarts are subject to be affected by these interferences. However, current technology makes it possible to immunize them against these risks. It is what is called their electromagnetic level of immunity to the interference, measured also in volt per meter (V/m).

The controller has been tested for compliance with EC directive 89/336/EEC, and the EMC requirements of PREN12184. The guidelines in this section will help you to make sure that your vehicle installation will easily meet the requirements of the directive.

Electromagnetic energy effects-caution

Waves emitted by the following devices can affect the correct operation of the battery charger:
Radio and television stations,
Amateur radio,
Radio transmitters and receivers,
Cellular phones.

Using transmitters and receivers

Avoid proximity to sources of electromagnetic emissions.

Battery charger types

The battery charger you were supplied was designed to provide fast and secure charge to batteries for your Helitowcart . This battery charger is designed to perform initial charging & recharging of lead-acid batteries. Here is a list of recommended battery charger for each Helitowcart model:

Battery Charger Type	Tow Cart & Carrier Models
4 Amps / 24v	V90, V201, V204, V602, V614, V650
7.5 Amps / 48v	V1020, V1022, V1030, V1032, V1040
18 Amps / 48v	V1020, V1022, V1030, V1032, V1040 (recommended for 8 battery application)

Battery types

The supplied battery charger is designed to charge Deep Cycle Lead Acid batteries only.

Helitowcart machines can be operated with WET, GEL or AGM batteries. Some battery chargers require a particular set-up to switch from one acid format to another. Check specific battery charger information in the annex section of this manual for the particulars relating to your battery charger.

	DEEP CYCLE batteries are REQUIRED for use with Helitowcart to obtain optimal performance. Use of start-up batteries such as car batteries will result in very short battery life and poor equipment performance.

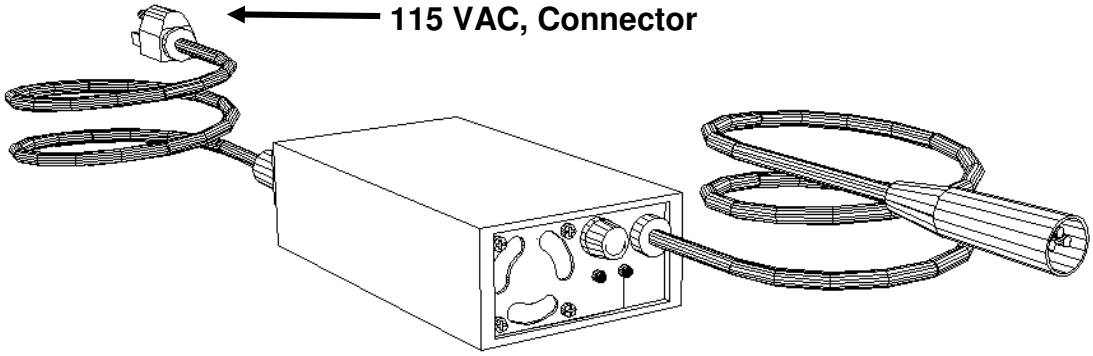
Initial Power Selection

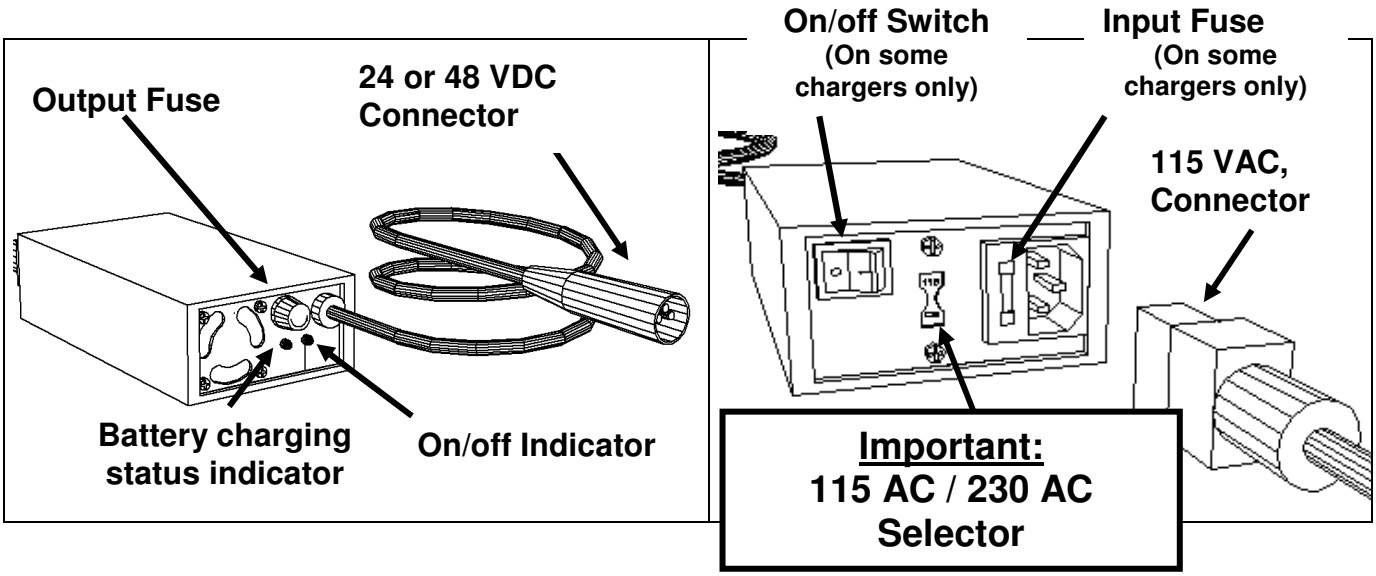
IMPORTANT	**Set voltage selector to appropriate setting PRIOR TO initial use. Select 115 or 230 Volts according to local electrical services. Failure to do so could lead to major battery charger damage.**

Battery charger introduction

The battery chargers supplied by Helitowcart are automatic: when the batteries are fully charged the charger switches to a low intermittent charging mode. This low charging mode ensures that batteries are kept in optimal charging condition since they naturally loose power slowly even when not used. These battery chargers can be left unattended during the charging process.

The following images are for a typical battery charger. Your unit may have a slightly different configuration. Consult specific instruction for your particular battery charger in the annex section at the end of this manual.





The battery charger has a warranty of six (6) months from Helitowcart (Vanair inc.)

During the period of validity of this warranty: Vanair inc will repair or replace any defective part provided that it is returned carefully packed to prevent any further damage and sent (prepaid) to an authorized Helitowcart service dealer according to instructions provided by Vanair inc. Such instructions may be obtained by contacting your dealer or Vanair inc.

This warranty does not apply to the mechanical elements or component damaged by abuse, negligence, accident, wear and tear or setup instruction unauthorized by Vanair Inc.

Vanair inc. guarantees the availability of components and parts necessary to the operation of the Helitowcart products for period of (2) years from the delivery date.

The present warranty is given in place of any other written, tacit or statutory warranty. The responsibility of Vanair inc. is limited to repair or to the replacement of any part or component, according to the above-mentioned terms.

Exclusions and limitations: This warranty does not apply to the products which were the subject of negligence, accident, negligent use, maintenance, defective storage, or of abnormal use. Moreover, this warranty does not apply to products damaged in consequence of a repair or of a modification of a component without the express assent of Vanair inc. neither with repairs and/or modifications not carried out by an Vanair inc. authorized distributor and nor with the products damaged because of circumstances independent of the will of Vanair inc.

This warranty is limited to repairs and, with absolute discretion of Vanair inc. to the replacement of defective material as expressed with the present warranty. Except for the warranty expressed in this document, Vanair inc. does not grant, relative with its products, any warranty express or implicit, legal or conventional, including for hidden vice, nor no implicit warranty of marketable quality or suitability aiming at a particular use, except contrary stipulation with the present warranty.

The warranty stipulated above replaces any responsibility or obligation of Vanair inc. concerning the damage coming or referring to the Helitowcart products.

Vanair inc. cannot, in any case, be held responsible for the particular, indirect or consecutive damage, even if Vanair inc. were informed of the possibility of such damage. The warranty of the distributor is expressly limited to the repair and the replacement of non conforming products as envisaged in this warranty or to the refunding of a sum not exceeding the purchase price of the material in question.

The stipulations above constitute the declaration of warranty complete and exclusive which applies to the Helitowcart products and overrides any proposal or former agreement, orally or written, and on any other communication in between Vanair inc. and a particular distributor relative to the Helitowcart warranty.

Vanair inc. does not assume any risk related to the damage undergone in the course of transport. Vanair inc. does not grant any other warranty but that which is envisaged above. All the warranties, including the implicit warranty of marketable quality and suitability aiming at a particular use are limited to the period indicated above starting from the date of purchase. Vanair inc. cannot be held responsible for the particular, indirect or consecutive damage, from contractual nature that results from an offence or another cause.

Vanair inc. declines any responsibility for physical injuries or materials damage resulting from an improper use of its products, from a lack of precaution in their use or from a modification made without its written assent.

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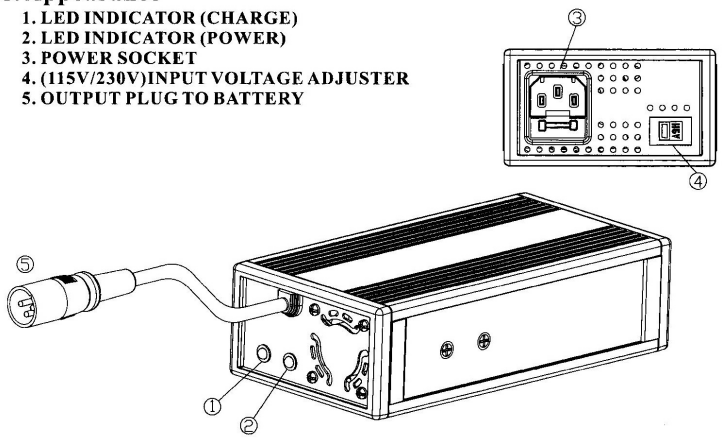
BATTERY CHARGER INSTRUCTION

1. Appearance

1. LED INDICATOR (CHARGE)
2. LED INDICATOR (POWER)
3. POWER SOCKET
4. (115V/230V)INPUT VOLTAGE ADJUSTER
5. OUTPUT PLUG TO BATTERY



2.SPECIFICATION

Item	Battery Charger (Switching Mode)		
Model	4F24040	4F24050	4F24060
Output Current (DC)	4A	5A	6A
Charging Voltage(DC)	28.8V		
Float Charging V.(DC)	27.6V		
Input Current(AC)	4/2 A		
Input Voltage(AC)	115 Vac Or 230 Vac 50/60Hz （Manual Select）		
Efficiency	AC-DC 80%		
Performance	Switching Mode		
Charging Method	Constant Current，Two Stage Constant Voltage		
Battery Application	24V Lead Acid Batteries (20Ahr ~ 60Ahr)		
Output Detection	1.Short Circuit Detection 2.Output Voltage／Current Limit 3.Reverse Power Protected 4.Overheat Detection		
Operating Temperature	0 °C ~ 40 °C		
Measurement	L 190mmxW 100mmxH 55mm		
Weight	965 g		
Color	Black		

3. OPERATING INSTRUCTION

(1) Manual adjust the correct input voltage (115V/230V).
(2) Connect the plug of battery charger to the socket of battery.
(3) Plug in the power cord. Turn the power on. Normally, The LED (Power) Light will turn on when electric current passes.
(4) Charging starts. During charging, LED (Charge) will indicate Orange light, when it turns to Green light, that means well-charged.

4. LED INDICATION

LED (POWER)-GREEN LIGHT ON: Power On
LED (CHARGE)-ORANGE LIGHT ON: Charging
GREEN LIGHT ON: Fully Charged

5. TROUBLE SHOOTING

(1) If LED (POWER) light is off
- Check the input voltage (115V/230V) is the same as you adjust.
- If light is still off, please check and repair the battery charger.

(2) If LED (CHARGE) light is of
- Check to see the clips connection is correct.
- If the battery is fully charged, the LED (CHARGE) light will be off.
- If light is still off, the battery may be defective.

(3) If ORANGE light can not turn to GREEN
- The battery can not be charged. Please check and recover it.

(4) If ORANGE light turns to GREEN light immediately
- Check to see the battery is fully charged, if not, The battery may be defective. Check and recover it.

6.CAUTION

(1) To prolong charger life, do not connect the short output for long time.
(2) Though charger charge automatically and can be used for deeply discharged battery, do not use for extremely discharged, short aged and defective battery.
(3) Use the charger in a well-ventilated area.
(4) Use for LEAD ACID batteries 12V (13-60Amp-Hr.) *2 only.
(5) Do not use for voltage input except the specified.
(Make sure your present voltage input (115V or 230V) and adjust manually).

DESCRIPTION

This battery charger is designed to charge lead-acid batteries and then to retain that full charge (unattended) during periods of inactivity.

This is accomplished with electronic circuitry that controls and regulates the amount of charging current that is sent from the charger to the battery. The charger charges the batteries at their maximum level as required and than stays on maintenance charge mode without cooking or overcharging the battery, thus extending the life of the battery.

LABEL & SELECTOR SWITCHES

1. Label: The label affixed on the battery charger provides details on the Input / Output parameters, Type of Inhibit/Interlock, Model name, Classification type and Markings on the chargers.

2. AC selector switch: The charger is suitable to operate in any part of world. (AC selector voltage setting: 115VAC for 100-120VAC countries; 230VAC setting for 220-240VAC countries).

3. DC selector switch: Wet or High setting - For Wet or dry batteries; Gel or AGM or Low setting - For Gel or AGM

OPERATING INSTRUCTIONS

Before proceeding to charge battery make sure you read all provided safety instructions.

1. Make sure that the charger is connected to AC power.
2. Connect the battery to the charger. Green LED shows full charge.
3. LED color and their meaning are described on the label.

SAFETY INSTRUCTIONS

1. **CAUTION-**To reduce risk of injury, charge only lead-acid type rechargeable batteries. Other types of batteries may burst causing personal injury or damage.
2. Do not expose charger to water, rain or snow.
3. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
4. Extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in risk of fire and electric shock. If extension cord must be used. make sure:
   a. That the pins on plug of extension cord are the same number, size, shape, as those on the charger.
   b. That extension cord is properly wired and in good condition.
5. Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subject to damage or stress.
6. Do not operate charger with damaged cord or plug – replace immediately.
7. Do not operate charger if it has received a sharp blow or otherwise damaged in anyway.
8. Do not cover the battery charger by clothing or similar things during charging process. Ensure free ventilation
9. Keep the battery charger away from dusty conditions.

	This 18 amps-48v unit has been programed to service AGM batteries only. It is not designed to serve WET batteries.

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

This manual contains important safety and operating instructions – read before using charger.

Warning: **Use charger only with an algorithm selected that is appropriate to the specific battery type. Other usage may cause personal injury and damage. Lead acid batteries may generate explosive hydrogen gas during normal operation. Keep sparks, flames, and smoking materials away from batteries. Provide adequate ventilation during charging. Never charge a frozen battery. Study all battery manufacturers' specific precautions, ie. maximum charge rates and if cell caps should be removed while charging.**

Danger: **Risk of electric shock. Connect charger power cord to an outlet that has been properly installed and grounded in accordance with all local codes and ordinances. A grounded outlet is required to reduce risk of electric shock – do not use ground adapters or modify plug. Do not touch uninsulated portion of output connector or uninsulated battery terminals. Disconnect the AC supply before making or breaking the connections to the battery. Do not open or disassemble charger. Do not operate this charger if the AC supply cord is damaged or if the charger has received a sharp blow, been dropped, or otherwise damaged in any way – refer all repair work to the manufacturer, or qualified personnel. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.**

INFORMATIONS IMPORTANTES DE SÉCURITÉ

Ce manuel contient des instructions importantes concernant la sécurité et le fonctionnement.

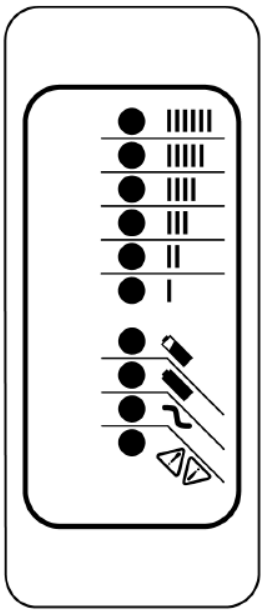
Attention: **Utiliser le chargeur seulement avec un algorithme approprié au type spécifique de batterie. D´autres types de batteries pourraient éclater et causer des blessures ou dommages. Les batteries peuvent produire des gaz explosifs en service normal. Ne jamais fumer près de la batterie et éviter toute étincelle ou flamme nue à proximité des batteries. Fournissez une ventilation adéquate du chargement. Ne jamais charger une batterie gelée. Prendre connaissance des mesures de précaution spécifiées par le fabricant de la batterie, p. ex., vérifier s´il faut enlever les bouchons des cellules lors du chargement, et les taux de chargement.**

Danger: **Risque de chocs électriques. Ne pas toucher les parties non isolées du connecteur de sortie ou les bornes non isolées de la batterie. Toujours connecter le chargeur à une prise de courant mise à la terre. Déconnectez la source AC avant de faire ou défaire les connections à la batterie en chargement. Ne pas utiliser le chargeur si le cordon d'alimentation AC est endommagé ou si le chargeur est abîmé suite à une chute ou autre indicent. Ne pas ouvrir ni désassembler le chargeur – référer toute réparation aux personnes qualifiées. Cet appareil n'est pas destiné à un usage par des personnes (dont les enfants) avec des facultés motrices, sensorielles ou mentales réduites, ou ayant une expérience et des connaissances insuffisantes, à moins qu'elles sont sous la supervision ou reçoivent les instructions sur l'utilisation de l'appareil d'un répondant garant de leur sécurité. Les enfants devraient être surveillés afin qu'il ne jouent en aucun temps avec l'appareil.**

Operating Instructions

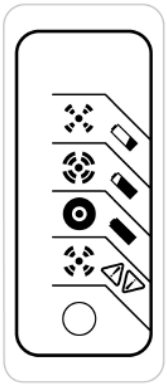
CAUTION: Charger enclosure may be hot during charging. Use hand protection if handling the charger while charging.

1. Extension cords must be 3-wire cord no longer than 30m(100') at 10AWG or 7.5m(25') at 16AWG per UL guidelines.
2. Only connect **ONE** QuiQ charger to a single 15A circuit or the circuit may become overloaded.
3. Charger 10-LED Display:



LED Colour		Indication (following "Power-On Self Test")	
Ammeter (Amber)	IIIIII IIIII IIII III II I	**Solid:**	Displays approximate scale of current output during bulk phase.
		Flashing:	High internal charger temperature. Output reduced. Also displays algorithm #1-6 for 11 seconds if no battery is connected.
80% Charge (Amber)		**Solid:**	Bulk charge phase complete, 80% charged. In Absorption phase.
		Flashing:	With no battery connected, indicates algorithm # selected by number of flashes.
100% Charge (Green)		**Solid:**	Charging complete. Charger in Maintenance Mode.
		Flashing:	Absorption phase complete. In Finish phase
AC On (Amber)		**Solid:**	AC Power good
		Flashing:	Low AC Voltage, check voltage and extension cord length (see above for guidelines).
Fault (Red)		**Flashing:**	Charger error. Reset charger power and refer to Troubleshooting Instructions below.

4. Optional Charger Single-LED Display (internal or external)



LED Colour		Indication (following "Power-On Self Test")	
Green		**Solid:**	Charging complete. Charger in Maintenance Mode.
		Flashing:	*Short:* <80% Charge.
			Long: >80% Charge.
			When battery is not connected: Algorithm Number display.
Amber		**Flashing:**	Reduced Power Mode: Low AC Voltage or High internal charger temperature.
Red		**Flashing:**	Charger error. Reset charger power and refer to Troubleshooting Instructions below.

Maintenance Instructions

1. Do not expose charger to oil, dirt, mud or direct heavy water spray when cleaning vehicle.
2. If the detachable input power supply cord set is damaged, replace with a cord that is:
   a.) for North America - UL or CSA listed/approved detachable cord, 3 conductor, 16AWG minimum, and rated SJT; terminating in a grounding type IEC 60320 C14 plug rated 250V, 13A minimum; or
   b.) for all other countries – a safety approved detachable cord, 3 conductor, 1.5mm² minimum, rated appropriately for industrial use. The cord set must be terminated on one end with a grounding type input connector appropriate for use in the country of destination and, on the other end, an output grounding type IEC 60320 C14 plug.
3. The enclosure of the charger has been tested successfully to EN60529, meeting IP66. The AC supply inlet is rated to IP20, which is suitable for indoor use only. Keep all AC connections clean and dry.

Troubleshooting Instructions

If a fault occurs, count the number of red flashes between pauses and refer to the table below:

Red Flashes	Cause	Solution
☀	Battery High Voltage	Check battery size and condition and reset charger (interrupt AC power for 15 seconds).
☀☀	Battery Low Voltage	Check battery size and condition and reset charger (interrupt AC power for 15 seconds).
☀☀☀	Charge Timeout caused by battery pack not reaching required voltage. Charger output was reduced due to high temperatures	Check connections. Operate charger at a lower ambient temperature.
☀☀☀☀	Check Battery: battery could not be trickle charged up to minimum voltage	Check for shorted or damaged cells.
☀☀☀☀☀	Over-Temperature: Charger shut down due to high internal temperature.	Ensure sufficient cooling air flow and reset charger (interrupt AC power for 15 seconds).
☀☀☀☀☀☀	Charger Internal Fault	Reset charger (interrupt AC power for 15 seconds). Return to qualified service depot if fault persists.

Note: This is a Class A product complying with United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 15. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

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